

## Transition of Research to the Operational Hurricane WRF model: the Role of the Developmental Testbed Center

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### ABSTRACT

The Hurricane Weather Research and Forecasting (HWRF) model is a numerical weather prediction suite run operationally by NCEP to provide guidance to the National Hurricane Center. HWRF is also run experimentally by the NOAA Environmental Modeling Center (EMC) for additional oceanic basins, and these forecasts are used routinely at the Joint Typhoon Warning Center. In order to meet the ambitious goals set forth by the NOAA Hurricane Forecast Improvement Project (HFIP), EMC has partnered with the Developmental Testbed Center (DTC) to accelerate the transition of new research and development to the HWRF model.

The DTC, in close partnership with EMC, has put in place several mechanisms to achieve this mission. Yearly HWRF public releases, along with tutorials and user support, have been made available by DTC. All HWRF code repositories have been placed outside the NCEP firewall, and access has been granted to community developers. The DTC has provided training in code management, building HWRF codes, and HWRF automation with the NOAA ESRL Rocoto Workflow Manager System to the developers, many of them funded by HFIP. The DTC has also chaired weekly meetings of the HWRF Developers Committee, in which new development is discussed and prepared for integration in the centralized code. Finally, the DTC has awarded several grants through its Visitor Program for work with HWRF.

The outcome of this effort is that several strengths and weaknesses of HWRF have been diagnosed, and code enhancements have been made available for further testing at EMC. Several developments, for example updates to the radiation, moist physics, and boundary layer parameterizations, are currently undergoing pre-implementation testing at EMC for potential inclusion in the 2015 operational model. In this presentation we will give an overview of the process used by DTC to expedite HWRF development and present some of the results obtained. In addition, we will discuss changes the DTC helped implement in the HWRF infrastructure, including a complete set of object-oriented Python scripts for streamlining model execution, which has been accepted for 2015 operational implementation.

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